APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
URICK, MATTHEW T

ART UNIT	PAPER NUMBER
2113	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

	Application No.	Applicant(s)
Office Action Summary	10/759,894	CHANDRASEKARAN ET AL.
	Examiner	Art Unit	
	Matt Urick	2113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _08 January 2004_.

2a)☐ This action is **FINAL.** 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-56_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) _14-19,53 and 54_ is/are allowed.

6)☒ Claim(s) _1-3,5,6,11-13,20-22,24,27-52,55 and 56_ is/are rejected.

7)☒ Claim(s) _4,7-10,23,25 and 26_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _14 August 2003_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

Non-Final Official Action

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 27-52, and 55-56 recite "a machine readable medium carrying one or more sequences of instructions..." Applicant's specification ¶ 98-101 discloses that instructions may be carried over "transmission media," such as "acoustic or light waves such as those generated during radio-wave and infra red data communications." Such media is considered non-statutory under 35 USC 101.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 3, 5, 6, 27-29, 31, and 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Kaminsky (US 2004/0024979).

As per claim 1, Kaminsky discloses:

A method for mirroring data between a plurality of sites, comprising:

maintaining, at a first site of the plurality of sites, a record that identifies which transactions that have been executed at the first site have had their redo information replicated to the other sites of the plurality of sites (¶ 45 last 15 lines: updates may be noted using a dirty list);

determining a priority value associated with a transaction that is to be performed at the first site, wherein the transaction specifies a modification to a data block (¶ 54 lines 1-6);

if the priority value is a first value in a set of possible values, then committing the transaction only after the record indicates that redo information associated with the transaction has been replicated to the other sites of the plurality of sites (¶ 54 lines 1-6, last 8 lines: if synchronous mirroring is used, the system waits for an acknowledgement signal for confirmation); and

if the priority value is a second value in said set of possible values, then committing the transaction even though the record does not indicate that redo information associated with the transaction has been replicated to the other sites of the plurality of sites (¶ 54 lines 1-6, last 8 lines: if asynchronous mirroring is used, the system does not wait for an acknowledgement signal for confirmation).

As per claim 2, Kaminsky discloses:

The method of Claim 1, wherein the first value indicates that the transaction should not be lost if the first site becomes inoperable (¶ 4: continuous mirroring immediately sends the data to the mirror site, preventing loss of data).

As per claim 3, Kaminsky does not disclose:

The method of Claim 1, wherein the second value indicates the transaction can be lost if the first site becomes inoperable (¶ 4: discrete mirroring stores the data at the first site for a period of time, so the data may be lost if the first site becomes unavailable).

As per claim 5, Kaminsky discloses:

The method of Claim 1, wherein the record is a first record, and the method further comprises the step of:

maintaining, at the first site, a second record that identifies which transactions that have executed at the first site have had their redo information logged to persistent storage at the first site (¶ 45 last 15 lines: local or remote updates may be noted using a dirty list).

As per claim 6, Kaminsky discloses:

The method of Claim 1, further comprising the step of:

if the priority value is the second value in the set of possible values, then committing the transaction before the record indicates that the redo information generated by the transaction has been replicated to the other sites of the plurality of

sites (¶ 54 lines 1-6, last 8 lines: if asynchronous mirroring is used, the system does not

wait for an acknowledgement signal for confirmation).

Claims 27-29, 31, and 32 are rejected as the machine-readable medium carrying

one or more sequences of instructions for performing the method of claims 1-3, 5, and

6.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 11-13 and 37-39 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Teloh (US 2003/0014523) in view of Microsoft Computer Dictionary

(fifth edition).

As per claim 11, Teloh discloses:

A method for storing data, comprising: at a first site in a plurality of sites,

processing a transaction;

generating information that reflects the processed transaction (figure 3 step 60:

application issues a write command); and

if said information has not been durably stored before either a data block

associated with the processed transaction is durably stored or the data block is

transferred to another site of the plurality of sites, then durably storing said information

before either the data block is durably stored or the data block is transferred to another

site of the plurality of sites (¶ 48 and figure 3; step 62: information about transaction is

durably stored, step 64: data is durably stored, step 66: data is put in queue to be

replicated).

Teloh does not disclose:

[...generating information] in volatile memory

Teloh discloses that his invention includes an application which issues a write to

a storage device (figure 3 step 60). It is not disclosed what type of memory the active

application uses to execute. Microsoft Computer Dicitonary discloses that RAM is a type

of volatile memory accessible by the CPU and other hardware of a computing system

which can be accessed in any order. Executing the application in RAM would enable the

processor or other hardware to access the application. Additionally, it is commonly

known in the art to execute application programs in RAM or other volatile memory.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of

invention to incorporate RAM into the storage network of Teloh, to execute the

application programs.

As per claim 12, Teloh discloses:

The method of Claim 11, wherein the data block is a first data block, wherein the

transaction is a first transaction, the information is a first information, and the method

further comprises the steps of:

at the first site, processing a second transaction (¶ 48 last 4 lines: after the first

write is complete, the next write begins. figure 3 step 60: application issues a write

command);

generating second information that reflects the processed second transaction;

and

if said first information and second information has not been durably stored

before either a second data block associated with the processed second transaction is

durably stored or the second data block is transferred to another site of the plurality of

sites, then durably storing using a batch process (¶ 16, the process is executed by a

processor) said first information and said second information before either the second

data block is durably stored or the second data block is transferred to another site of the

plurality of sites sites (¶ 48 and figure 3; step 62: information about transaction is

durably stored, step 64: data is durably stored, step 66: data is put in queue to be

replicated. ¶ 48 last 4 lines: first information has already been stored before second

write is started).

Teloh does not disclose:

[…generating information] in volatile memory

Teloh discloses that his invention includes an application which issues a write to

a storage device (figure 3 step 60). It is not disclosed what type of memory the active

application uses to execute. Microsoft Computer Dicitonary discloses that RAM is a type

of volatile memory accessible by the CPU and other hardware of a computing system

which can be accessed in any order. Executing the application in RAM would enable the

processor or other hardware to access the application. Additionally, it is commonly

known in the art to execute application programs in RAM or other volatile memory.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of

invention to incorporate RAM into the storage network of Teloh, to execute the

application programs.

As per claim 13, Teloh discloses:

The method of Claim 12, further comprising the step of:

determining whether the batch process has completed durably storing the first

information and the second information (¶ 48 last 4 lines: notification is sent for every

write).

Claims 37-39 are rejected as the machine-readable medium carrying one or

more sequences of instructions for performing the method of claims 11-13.

Claims 20, 21, 22, 24, 46-48, and 50 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Raju (US 6,035,379) in view of Kaminsky (2004/0024979).

As per claim 20, Raju discloses:

A method for mirroring data between a plurality of sites, wherein the plurality of sites includes a first site, comprising:

at the first site, durably storing a data block prior to durably storing redo information about changes made to the data block (column 3 lines 21-30 and figure 5: a transaction is performed (step 44) prior to storing a record in a commit log (step 46). Column 1 lines 11-19: A transaction can include updates to multiple databases); and

at the first site, durably storing the redo information after the changes have been replicated (column 3 lines 21-30 and figure 5: a transaction is performed (step 44) prior to storing a record in a commit log (step 46). Column 1 lines 11-19: A transaction can include updates to multiple databases).

Raju does not explicitly disclose using a plurality of sites.

Kaminsky discloses a mirroring system which processes mirroring transactions between a primary site and a plurality of mirroring sites over a network (¶ 25 - ¶ 26). Raju discloses that his transaction system is able to send the same update to multiple databases, such as bank accounts (column 1 lines 11-30). It is disclosed that multiple storages may be used, but it is not disclosed whether the storages are at local or remote sites (column 2 lines 10-16). Using the mirroring system of Kaminsky would enable the transaction processing system of Raju to perform transactions on multiple sites if required by the transaction. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to incorporate multiple sites into the

transaction processing system of Raju, allowing transactions to be processed over

multiple sites.

As per claim 21, Raju discloses:

The method of Claim 20, wherein the data block is in a plurality of data blocks,

wherein changes made to the plurality of data blocks are performed by

transactions issued by a single process (column 2 lines 5-7, 10-17: transaction

processing systems may use one or multiple "data streams") comprising the step of

determining if a set of transactions issued by the single process have completed,

wherein the set of transactions made the changes to the plurality of data blocks

(column 3 lines 21-30: a commit log is saved for each transaction, which stores whether

or not a transaction was completed; column 3 lines 31-46: the log files are checked to

see which actions were committed or uncommitted, and appropriate actions are taken).

As per claim 22, Raju discloses:

The method of Claim 20, wherein the data block is in a plurality of data blocks,

wherein changes made to the plurality of data blocks are performed by transactions

issued by two or more processes (column 2 lines 5-7, 10-17: transaction processing

systems may use one or multiple "data streams"), and further comprising the step of

determining when the changes have been replicated to the other sites in the plurality of

sites (column 3 lines 21-30: a commit log is saved for each transaction, which stores

whether or not a transaction was completed; column 3 lines 31-46: the log files are

checked to see which actions were committed or uncommitted, and appropriate actions are taken).

As per claim 24, Raju does not disclose:

The method of Claim 20, further comprising the steps of:

at each site of the plurality of sites, determining if a data structure is to be replicated to each other site of the plurality of sites; and

replicating the data structure to each other site of the plurality of sites unless it is determined that the data structure is not to be replicated to each other site of the plurality of sites.

Kaminsky discloses a mirroring system which processes mirroring transactions between a primary site and a plurality of mirroring sites over a network (¶ 25 - ¶ 26).Kaminsky discloses that this system is able to choose whether or not to mirror file updates to other storage systems (¶ 27). Raju discloses that his transaction system is able to send the same update to multiple databases, such as bank accounts (column 1 lines 11-30). It is disclosed that multiple storages may be used, but it is not disclosed whether the storages are at local or remote sites (column 2 lines 10-16). Using the mirroring system of Kaminsky would enable the transaction processing system of Raju to perform transactions on multiple sites if required by the transaction, or omit sites if necessary. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to incorporate multiple sites into the transaction processing system of Raju, allowing transactions to be processed over multiple sites if necessary.

Claims 46-48, and 50 are rejected as the machine-readable medium carrying one or more sequences of instructions for performing the method of claims 20-22, and 24.

Allowable Subject Matter

Claims 14-19, 53, 54 are considered allowable over the prior art. The prior art does not disclose:

"if the first site does not replicate, to the other sites of the plurality of sites, write transactions that are executed at the first site in the order in which the write transactions were issued, then durably storing a data block, in the one or more data blocks, associated with a transaction only after the record indicates that any write transactions that have updated the data block at the first site have had their respective redo information replicated to the other sites of the plurality of sites."

The prior art of record does not teach the combination of limitations of claim 14, or suggest the combination as claimed in claim 14.

Claims 15-19, 53, and 54 are considered allowable as being dependant on base claim 14.

Claims 4, 7-10, 23, 25, and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 30, 33-36, 49, 51, and 52 are objected to as being dependent upon a

rejected base claim, but would be allowable if rewritten in independent form including all

of the limitations of the base claim and any intervening claims, and rewritten to

overcome the above cited rejection under 35 USC 101.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Matt Urick whose telephone number is (571) 272-0805.

The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Robert Beausoliel can be reached on (571) 272-3645. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

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